Platform Proto-Federation
HLA OMT Experiences

AMG-10
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PPF FOM Development Process

- **Excel spreadsheet used to capture FOM data**
  - cumbersome for inheritance, visualization, consistency, and modification
- **Detailed scenario facilitated identification of concrete classes and interactions**
- **Federate SOM development followed OMT FOM guidelines**
- **Federates met on several occasions to negotiate and record FOM data**

Class Structure Table

- **Class structure based on common attributes and potential filtering needs**
  - contrast to typical Object-Oriented class design
- **PPF structure influenced by DIS standards**
  - e.g. Entity -> Platform ->Ground_Vehicle -> Wheeled
- **Process lacks guidance or methodology**
  - subjective to understanding of a priori requirements (filtering, granularity, fidelity)
- **Multiple inheritance difficult to represent**
  - excessive duplication in tabular format

Attribute Table

- **Complex attributes**
  - initially not well understood, and not consistent with the RTI notion of discovery predicates
- **Added timestamp column**
- **Ownership transfer condition**
  - attributes can only be transferred with entire object
- **Composite objects**
  - examined alternatives using sets of attributes as contained objects
- **Example: object = entity, attribute = location.x**

Interaction Table

- **External federation interactions defined**
  - internal interactions were recognized as useful event markers, but not required for experiments
- **Semantic interaction information added**
  - comment column explains rules and conditions
- **Dynamic object creation contention**
  - effects may have non-zero duration, dynamic creation of objects provides implementation independence (e.g., simulations can create objects only if able)

Lessons Learned

- **Complete scenario development and experiment definitions before creating FOM**
- **FOM process**
  - member coordination time is intensive
  - complex attributes and semantic interaction descriptions not fully supported (or understood)
- **Automated tools needed for development**
- **FOM development methodology**
  - must evolve techniques from lessons learned for class formation with respect to various tradeoffs

Additional OMT Concerns

- **SOM/FOM abstraction**
  - SOMs will be developed independent of FOMs, a process to translate between models is necessary
- **SOM simulation software connectivity**
  - compile time synchronization of SOM (FOM) data and simulation software required for maintainability